Pre-Algebra – Unit 1: The Language of Algebra

Phoenixville Area School District

Stage 1 Desired Results

PA Core Standards:
M07.B-E.1.1 Use properties of operations to generate equivalent expressions.

M06.A-N.3.2 Understand ordering and absolute value of rational numbers. (6th)

PSSA Assessment Anchors:
M07.B-E.1 Represent expressions in equivalent forms.
M06.A-N.3 Apply and extend previous understandings of numbers to the system of rational numbers. (6th)

Transfer

TRANSFER GOALS
Students will be able to independently use their learning to…

- *Number Sense:* Develop a sound foundation to demonstrate the value of numbers by describing their various representations, relationships, and patterns.
- *Mathematical Vocabulary:* Interpret mathematical vocabulary and apply proper terminology to engage in meaningful oral and written expression that communicates mathematical thinking, problem-solving methods, and rationale.

Meaning

UNDERSTANDINGS
Students will understand that…

- Variables represent the unknown so that mathematicians can generalize a pattern rather than being limited to looking at specific values.
- Algebraic rules and properties determine how expressions are simplified and how equations are solved.

ESSENTIAL QUESTIONS
Students will keep considering...

- What is the nature of the relationship? How do I represent it?
- What does this quantity/number/ expression/value mean? What are the ways to represent it? Is there a best way?

Knowledge and Skills Acquisition

KNOWLEDGE
Students will know…

- Algebraic expressions from verbal descriptions.
- Linear expressions with rational coefficients.
- Coordinates of rational numbers on a number line as well as a coordinate plane. (6th)

SKILLS
Students will be skilled at…

- Applying properties of operations to add and subtract to simplify an expression.
- Applying properties of operations to factor and distribute to put an expression in simplest form.

	VOCABULARY • Associative Property • Coefficient • Commutative Property • Coordinate Plane (6th) • Distributive Property	• Expanding linear expressions with rational coefficients when asked to simplify an expression. • Locating and plotting pairs of integers and other rational numbers on a coordinate plane. (6th)

Stage 2 – Evidence

Code A/M/T	Evaluative Criteria	Assessment Evidence	
A/M/T Acquisition Meaning Making Transfer	*What criteria will be used in each assessment to evaluate attainment of the desired results?*	PERFORMANCE TASK(S) *Students will demonstrate understanding (meaning making and transfer) through complex performance by...* **Taxi Cab Ride** The best price is needed for the taxi ride to the airport for a large party. • **Goal:** Your task is to calculate the cheapest way to ride to the airport. • **Role/Audience:** You are organizing this for a group of 75 people. • **Situation/Product:** After devising an expression, you will calculate the cost. • **Success Criteria:** You will present the cost of various taxi sizes and then explain why one size is the best deal. **Pilot's Mission** This task is part of the online textbook and might not be accessible. Using data, the student will graph the altitude of known temperatures and then, state the expected altitude given other possibilities. • ***Goal:*** Your task is to predict the altitude you will encounter on a flight. • ***Role/Audience:*** You are an airplane pilot. • ***Situation/Product:*** You will plot the given data on a coordinate plane. • ***Success Criteria:*** After analyzing the graph, you will infer the expected altitude and support this with an explanation.	Differentiation Considerations:
A/M/T	*What criteria will be used in*	OTHER EVIDENCE	Differentiation Considerations:

Acquisition Meaning Making Transfer	*each assessment to evaluate attainment of the desired results?*	**Unit Test** • Multiple Choice • True/False • Matching • Compare and contrast the Associative Property and the Commutative Property. • Explain why like variables can be added and subtracted but a variable and constant cannot.	